

and means scrubbing the finally condensed gaseous affluent to remove remnants of mercury therefrom;

the oven having a rigid, warp-resistant frame surrounding an open front portion thereof, and a door for closing the open front portion having a rigid, warp-resistant frame and a seal member acting between the oven body and the door in an oven-closing position;

wherein the oven, condensing means, mercury trap, and connecting passages are capable of operation in the range of internal pressures from 50 Torr to atmospheric with simultaneous internal oven temperatures in the range of 500 to 1500°F.

2. (Amended) [The retorting device of claim 1, wherein the oven comprises] A device for retorting mercury bearing materials, comprising:

an oven for heating the materials to volatilize the mercury, condensing means for liquefying the resultant gaseous mercury, trap means for collecting liquid mercury outflowing from the condensing means, receptacle means for collecting the liquefied mercury from the trap, vacuum means maintaining trap, condensing means, oven and connecting passages at sub-atmospheric pressures and means scrubbing the finally condensed gaseous affluent to remove remnants of mercury therefrom; wherein

the oven comprises an oven body including:

a steel shell generally surrounding an internal space, having essentially closed bottom, top, side and rear portions and a substantially open front portion;

a rigid continuous frame continuously secured to the oven body shell all about the periphery of the open front portion thereof; and

an oven door for closing the open front portion of the oven body, said door comprising;

a steel shell door body;

a rigid frame continuously welded to the door body shell all about the periphery thereof; and

a seal member acting between the oven body and the door when the door is in oven-closing position; and wherein

the oven, condensing means, mercury trap, and connecting passages are capable of operation in the range of internal pressures from 50 Torr to atmospheric with simultaneous internal oven temperatures in the range of 500 to 1500°F.

92 10. (Amended) [The retorting device of claim 1, wherein the mercury trap thereof comprises] A device for retorting mercury bearing materials, comprising:

an oven for heating the materials to volatilize the mercury, condensing means for liquefying the resultant gaseous mercury, trap means for collecting liquid mercury outflowing from the condensing means, receptacle means for collecting the liquefied mercury from the trap, vacuum means maintaining trap, condensing means, oven and connecting passages at sub-atmospheric pressures and means scrubbing the finally condensed gaseous affluent to remove remnants of mercury therefrom, wherein the mercury trap thereof comprises:

elongate tank means supported generally horizontally with a volatile oven effluent inlet end thereof elevated above an opposite, liquid mercury, outlet end;

water partially filling the tank means;

condenser means connected to the tank means above the water therein, so that condensate therefrom flows into the water;

means directing gaseous effluent from the oven through the condenser means; and

means for removing liquid mercury from the tank means from beneath the surface of the water while retaining other condensed materials; and wherein

the oven, condensing means, mercury trap, and connecting passages are capable of operation in the range of internal pressures from 50 Torr to atmospheric with simultaneous internal oven temperatures in the range of 500 to 1500°F.

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14. (Amended) [The retorting device of claim 1] A device for retorting mercury bearing materials, comprising:

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an oven for heating the materials to volatilize the mercury, condensing means for liquefying the resultant gaseous mercury, trap means for collecting liquid mercury outflowing from the condensing means, means for introducing a flow of ambient air into the oven to impel the mercury vapor into the trap and condensing means, receptacle means for collecting the liquefied mercury from the trap, vacuum means maintaining trap, condensing means, oven and connecting passages at sub-atmospheric pressures

and means scrubbing the finally condensed gaseous affluent to remove remnants of mercury therefrom; wherein

the oven, condensing means, mercury trap, and connecting passages are capable of operation in the range of internal pressures from 50 Torr to atmospheric with simultaneous internal oven temperatures in the range of 500 to 1500°F.

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New Claims 24 and 25 are added as follows:]

24. A process for retorting mercury bearing materials, comprising the steps:

heating the materials in an oven to a temperature in the range of 1100 to 1500°F to volatilize the mercury;

condensing the resultant gaseous mercury to a liquid in a condensing means;

collecting liquid mercury outflowing from the condensing means in a trap means;

collecting the liquefied mercury from the trap means in a receptacle means;

maintaining the trap means, condensing means, oven and connecting passages at sub-atmospheric pressures of between 500 Torr and 50 Torr; and

scrubbing the finally condensed gaseous affluent to remove remnants of mercury therefrom using a scrubbing means.

25. The process of Claim 24, wherein the step of collecting liquid mercury outflowing from the condensing means in a trap means utilizes a trap means comprising:

elongate tank means supported generally horizontally with a volatile oven effluent inlet end thereof elevated above an opposite, liquid mercury, outlet end;

water partially filling the tank means;

condenser means connected to the tank means above the water therein, so that condensate therefrom flows into the water;

means directing gaseous effluent from the oven through the condenser means; and

means for removing liquid mercury from the tank means from beneath the surface of the water while retaining other condensed materials, said liquid mercury removing means comprising dam means extending upwardly from the bottom of the tank means at the mercury outlet end thereof.

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REMARKS

The Examiner rejected Claim 1 under 35 U.S.C. 102(b) as being anticipated by the admitted prior art of the instant disclosure. Claim 1 has been amended to recite the inventive concept more clearly, stating that the oven body and door each have rigid frames which resist warping at higher temperatures than prior art devices which allows lower pressures to be achieved in the oven. Claim 1 should thus be allowable.

The Examiner objected to Claims 2-20 and 23 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 2, 10, and 14 have been